



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/549,751

07/11/2006

Peter Lindmueller

LIND3009/FJD

1317

23364 7590 05/30/2008

BACON & THOMAS, PLLC  
625 SLATERS LANE  
FOURTH FLOOR  
ALEXANDRIA, VA 22314

EXAMINER

LE BOULLUEC, MICHAEL E

ART UNIT

PAPER NUMBER

2856

MAIL DATE

DELIVERY MODE

05/30/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/549,751	<b>Applicant(s)</b> LINDMUELLER ET AL.	
	<b>Examiner</b> MICHAEL LE BOULLUEC	<b>Art Unit</b> 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 10/549751.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/549751, filed on 25 March 2004.
2. Acknowledge that claims 1-10 have been cancelled by the preliminary amendment filed 21 September 2005.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 11 and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hadden et al. (US Patent 4476706).

Regarding claim 1, Hadden et al. teach a gas sensor module 10 ("one, or a plurality of gas detection units", col. 5, lines 13-14), comprising:

- a primary sensor 22 (fig. 3, col. 12, line 30) for the registering of a gas concentration ("combustible gas concentration", col. 6, line 30);
- a digital data memory ("appropriate microprocessor components, and circuitry for receiving and interpreting the signals from the A/D

converter", col. 5, lines 24-26) for storing sensor data or process data;  
and;

- a contactless interface ("operative communication (by means of direct wire connections, radio connection or combinations thereof)", col. 5, lines 14-16) for connecting to a superordinated unit 202 (fig. 2, col. 5, line 17) for supplying energy ("generate command signals to the devices 204, 206 for generating AC signals to the sensor units 10", col. 5, line 26-30) to the gas sensor module and for data exchange ("store and address for processing, the appropriate digitized signal vales for the individual sensor unit", col. 5, lines 55-57) between the gas sensor module and the superorinated unit.

Regarding claim 14, Hadden et al. teach the gas sensor module as claimed in claim 11, further comprising:

- an analog-digital converter 204 (col. 5, lines 25-26) for generating a digital signal ("conversion of the current-signal information from the sensor units 10 to digital form", col. 5, line 41-42), which is a function ("analog/digital conversion circuitry", col. 5, lines 39-40) of an analog signal ("converting the current signals to voltage representation", col. 5, line 36) of said primary sensor dependent on the gas concentration.

Regarding claim 15, Hadden et al. teach the gas sensor module as claimed in claim 14, further comprising: a microprocessor ("Appropriate microprocessor components, col. 5, line 24) which, on the one hand, controls ("transmit a current signal to the controller 200 via the satellite 206 in a predetermined range", col. 6, lines 28-29)

the data exchange between the interface of said gas sensor module and the superordinated unit, and, on the other hand, controls reading (shown in FIGS. 4 and 5, the illustrated sensor/transmitter circuitry 300 will transmit a current signal to the controller 200", col. 5, lines 24-25) from said digital data memory and writing ("overridden by the remote calibration circuitry of the device 10", col. 6, lines 25-26) to said digital data memory.

Regarding claim 16, Hadden et al. teach the gas sensor as claimed in claim 15, wherein: said analog-digital converter is integrated into said microprocessor ("appropriate microprocessor components, and circuitry for receiving and interpreting the signals from the A/D converter", col. 5, lines 24-25).

Regarding claim 17, Hadden et al. teach the gas sensor module as claimed in claim 11, further comprising: a temperature sensor 24 (col. 10, lines 61-64).

Regarding claim 18, Hadden et al. teach a transmitter module for operating at least one gas sensor module as claimed in claim 11, comprising:

- a contactless interface ("operative communication (by means of direct wire connections, radio connection or combinations thereof)", fig. 4, col. 5, lines 14-16) for data exchange ("transmit a current signal to the controller 200 via the satellite 206 in a predetermined range", col. 6, lines 28-29) with the gas sensor module and for energy supply ("unit 10 is sealed against propagation of explosions from within, and communicates with and receives power from a remotely located control unit and power supply

by a three wire cable", col. 4, lines 57-61) of the gas sensor module;  
and

- a communications circuit 300 ("included are transmitter terminal connections indicated by terminals identified on FIGS. 3 and 5 by boxes designated 1-8", col. 6, lines 14 and 19-21) for output of at least one of the signals dependent on the measured data.

Regarding claim 19, Hadden et al. teach the transmitter module as claimed in claim 18, wherein: said communications circuit is a circuit 70 ("an electronic circuit substrate", col. 8, line 5) for generating a 4...20 mA signal (col. 6, line 29), a HART-modem, or an interface for connecting to a data bus, for example a Fieldbus Foundation data bus or a PROFIBUS data bus.

Regarding claim 20, Hadden et al. teaches a modular gas sensor arrangement 10 ("a large number of sensor units 10 may be addressed and operated by the console", col. 5, lines 53-55), comprising:

- a transmitter module 14 (fig. 2, col. 4, lines 54-55) having a contactless interface ("operative communication (by means of direct wire connections, radio connection or combinations thereof)", col. 5, lines 14-16) for data exchange ("store and address for processing, the appropriate digitized signal vales for the individual sensor unit", col. 5, lines 55-57), with a gas sensor module 12 (fig. 2, col. 4, line 54) and for energy supply ("generate command signals to the devices 204, 206 for generating AC signals to the sensor units 10", col. 5, line 26-30) of the gas sensor module, a communications circuit 300 ("provides

an output signal responsive to the presence of combustible gas", col. 6, lines 9-11) for output of at least one of the signals dependent on the measured data and at least one gas sensor module suitable therefor, which includes a primary sensor 22 (fig. 3, col. 12, line 30), a digital data memory ("appropriate microprocessor components, and circuitry for receiving and interpreting the signals from the A/D converter", col. 5, lines 24-26) and a contactless interface "operative communication (by means of direct wire connections, radio connection or combinations thereof)", col. 5, lines 14-16).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hadden et al. (US Patent 4476706), and further in view of Weston (US Patent 3995209).

Regarding claim 12, Hadden et al. discloses the invention as claimed above, however does not specifically teach the gas sensor module as claimed in claim 11,

wherein: said contactless interface is embodied as a contactless plug or as a socket for a complementary, contactless plug.

Weston teaches a contactless interface is embodied as a contactless plug 10 ("male part", col. 2, line 37) or as a socket 11 ("female part", col. 2, line 45) for a complementary, contactless plug ("inductive connector", col. 2, line 33).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to substitute the connector ("This signal is output to the outside via the terminal 31b of the connector 31", col. 14, lines 37-38) of Hadden et al. with a contactless plug as taught by Westin for use in liquids or vaporous atmospheres to prevent shorts occurring in the connector. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Hadden et al. and Weston to obtain the invention specified in claim 11.

Regarding claim 13, Hadden et al. discloses the invention as claimed above, however does not specifically teach the gas sensor module as claimed in claim 11, wherein: said contactless interface comprises an inductive interface.

Weston teaches the contactless interface comprises an inductive interface ("inductive connector", col. 2, line 33).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the connector of Hadden et al. with an inductive interface as taught by Westin for use in liquids or vaporous atmospheres to prevent shorts occurring in the connector. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Hadden et al. and Weston to obtain the invention specified in claim 12.



### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL LE BOULLUEC whose telephone number is (571)270-3892. The examiner can normally be reached on Monday-Thursday from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams, can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLe 30 April 2008

/Hezron Williams/  
Supervisory Patent Examiner, Art Unit 2856